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Citation: Gill, Gita (2019) The National Green Tribunal: Evolving Adjudicatory Dimensions. Environmental Policy and Law, 49 (2-3). pp. 153-162. ISSN 0378-777X

Published by: IOS Press

URL: <https://doi.org/10.3233/epl-190151> <<https://doi.org/10.3233/epl-190151>>

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The National Green Tribunal, India: Evolving Adjudicatory Dimensions of a Specialised Environmental Forum*

Introduction

The current proliferation of specialized environmental courts and tribunals (ECTs) is ‘dramatically changing the playing field for environmental justice around the world... It is driven by the development of new international and national environmental laws and principles, by recognition of the linkage between human rights and environmental protection, by the threat of climate change, and by public dissatisfaction with the existing general judicial forums’.¹ The ECT’s aim to provide ‘effective resolution of environmental conflicts and/or expanding recognition of the need for procedural and substantive justice vis-à-vis environmental matters’.² The comprehensive study of ECT in 2009 by the leading experts, George Pring and Catherine Pring, identified over 350 ECTs in 41 countries.³ In 2016 the number had risen to over 1200 ECTs operating in 44 countries involving every major legal system (civil law, common law, mixed law, Asian law and Islamic law), at all government levels, from the richest to the poorest nations, with the majority created in the previous 10 years.⁴ According to Pring and Pring, as of 1st March 2018, nearly 1,500 ECTs exist⁵ thereby suggesting a specialist court could more ably deliver consistency in decision-making, decrease delays (through its understanding of the characteristics of environmental disputes) and facilitate the development of environmental laws, policies and principles.⁶

In India, the value of developing a specialised judiciary on environmental matters was driven by internal and external demands reflecting subject specificity and complexity. The internal demand for judicial expertise was fuelled by scientific limitations and inadequacies concerning the handling and progression of environmental cases. The Supreme Court acknowledged that judges face difficulties because of lack of scientific knowledge coupled with inadequate exposure and training in environmental matters.⁷ The complexity and uncertainty underpinning scientific evidence might not be fully appreciated or considered by the court. To seek a balanced, informed decision in environmental issues, expert processing and decision-making was considered as vital in complex cases involving uncertainties of scientific and technical conclusions.⁸ The Supreme Court decided an environmental court would benefit from expert advice provided by environmental scientists and technically qualified persons embedded in the judicial process.

The external demand was triggered by the Indian government’s commitment to promote its international obligations under environmental conventions of being a ‘good international citizen’. The 186th Law Commission Report observed that an environmental tribunal would reflect the commitments undertaken at international meetings.⁹ The purpose of implementing the decisions at Stockholm and Rio Conferences and constituting the tribunal was to provide a speedy adjudicatory body in respect of the disputes arising in environmental matters. It was suggested that the establishment of environmental courts would reduce the case load in the High Courts and Supreme Court, given that some 5,600 environmental cases were pending in

* Professor Gitanjali Nain Gill, Professor of Environmental Law, Northumbria University, Newcastle upon Tyne, UK. Correspondence to Gitanjali Nain Gill, Faculty of Business and Law, Northumbria Law School, Northumbria University, Newcastle upon Tyne, UK. E-mail address: gita.gill@northumbria.ac.uk.

these courts.¹⁰

Accordingly, the National Green Tribunal (NGT) was established on 18 October 2010 and became operational on 5 May 2011 with New Delhi selected as the site for the principal bench.¹¹ The regional benches found their homes in Bhopal for the central zone, Chennai for south India, Pune for the western territory, and Kolkata is responsible for the eastern region.¹² Additionally, to become more accessible, especially in remote areas, the NGT follows the circuit procedure of courts going to people and not people coming to the courts. Shimla has received circuit benches from Delhi,¹³ as has Jodhpur from the central zone,¹⁴ Meghalaya from the eastern zone,¹⁵ and Kochi from the southern zone.¹⁶ The NGT as a specialised body was created with the promise of not only speedy, effective, decentralized dispensation of environmental justice but also with appropriate expertise and knowledge in environmental matters.

The establishment of the NGT encouraged the Supreme Court to review its own environmental case-load and consider its limited environmental expertise. In *Bhopal Gas Peedith Mahila Udyog Sangathan v. Union of India*¹⁷ the Supreme Court transferred all environmental cases, both active and prospective, to the NGT to render expeditious and specialized judgments and to avoid the likelihood of conflicts of orders between High Courts and the NGT. The court ordered ‘in unambiguous terms, we direct that all the matters instituted after coming into force of the NGT Act and which are covered under the provisions of the NGT Act shall stand transferred and can be instituted only before the NGT. This will help in rendering expeditious and specialized justice in the field of environment to all concerned’.¹⁸ In 2015 the Supreme Court of India transferred more than 300 cases to the NGT. The Green Bench of the Supreme Court, headed by the then Chief Justice H. L. Dattu, decided to release several cases for swift decisions, thereby also shedding its pendency.¹⁹ Thus, the NGT is considered a significant, effective contributor to a more coherent and effective system of India’s environmental governance and regulation.

This article analyses the evolving adjudicatory dimensions of the NGT, tracing two phased distinct but interconnected developments for the dispensation of environmental justice in India. Part A of the article summarises NGT’s initial phase that defined and expanded the jurisdictional boundaries through substantive and procedural expansions and knowledge expertise. Part B is the present phase focusing on the promotion of new strategies introduced by the incoming Chairperson, Mr Justice A.K. Goel, that assist the NGT in monitoring and implementing its judgments and directions that protect the environment and the welfare of the public.

PART A

Phase 1- Substantive and Procedural Expansion and Scientific Expertise

The NGT is empowered to decide civil cases relating to environmental protection and the conservation of forests and other natural resources (including the enforcement of any legal right relating to the environment) and to give relief and compensation for damages to persons and property. The NGT has wide original,²⁰ appellate²¹ and special jurisdiction²² in relation to a substantial question relating to the environment.²³ Since its inception in 2010 the NGT has expanded and developed substantive and procedural dimensions that provide the foundations, based on a rights-based approach, that guide its decision-making in environmental matters. Scientific expertise and its input into the decision-making process is vital for the character,

decisions and working practices of the NGT.

Substantive Expansion

Substantively, the NGT has both developed an environmental jurisprudence and its practical application through preserving the link between life and a healthy environment and by successfully placing human rights within environmental discourse.²⁴ In the judicial pronouncements the right to a healthy environment has been construed as a part of the right to life under Article 21 of the Constitution.²⁵ Nevertheless, the right to life is ignored with impunity by states and authorities upon whom rest the constitutional and statutory obligations to provide a decent and clean environment.²⁶ In *Sher Singh v State of Himachal Pradesh*²⁷ the NGT observed ‘proper environment enables people to enjoy a quality of life which is the essence of the right guaranteed under Article 21. The right to have congenial environment for human existence is the right to life. The State has a duty in that behalf and to shed its extravagant unbridled sovereign power and to forge in its policy to maintain ecological balance and hygienic environment.’²⁸

The substantive approach also includes the derivative application of principles of international law alongside the right to a healthy environment. Section 20 of the NGT Act 2010 mandates the Tribunal to apply the precautionary and polluter pays principles and sustainable development when passing any order, decision or award. These principles are read in conjunction with the domestic constitutional right to a wholesome environment thereby advancing both national and international interests.²⁹

The application of the precautionary principle as a determinative norm in the NGT involves well-crafted scientific knowledge supporting prevention and prohibition of harm and a commitment to dealing with risks.³⁰ The application of the precautionary principle in decision-making is based on scientific information and analysis of possible risks to human health and environment, albeit tentative, inconclusive or in dispute. This creates uncertainty because of gaps in data or poor data, ignorance, faulty models, scientific inconsistency or disagreement on the nature of risk. The availability of merit review to the NGT promotes judicial application of the principle. As a merit court, the NGT becomes a primary decision-maker and can undertake in-depth scrutiny which involves not only law but also the technical evaluation underpinning a decision.³¹ The application of the precautionary principle results in different directions/regulatory actions including prohibition, restriction, warning requirements, phase out or extra scientific information.³² More importantly, the degree of precaution reflects a proactive approach to improve environmental management, and prevent and mitigate potential threats. Indeed, modern risk factors become more complex, far-reaching and adversely affect public health and environment. It is employed as a tool within Indian environmental jurisprudence for improving health and environmental decisions.

The application by the NGT of the polluter pays principle includes remediation of the damaged environment and as such the polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology.³³ Depending on the nature of the violations and subsequent impact, the NGT has imposed various penalties. These include failure on the part of the polluter to comply with environmental standards³⁴ violation of clearance conditions affecting environment,³⁵ industrial units operating as ‘one group of collective users’ on a commercial basis and violating pollution standards,³⁶ negligence and failure on the part of the state and regulatory authorities resulting in pollution,³⁷ large and diverse group of sources cause pollution, such as motor- vehicles or urban waste discharges,³⁸ and for activities affecting lives and livelihood of communities.³⁹

The NGT acts as a fulcrum for sustainable development. The operationalisation of the principle of sustainable development for projects of strategic and national importance and the larger interests of the people (particularly, but often detrimentally, affecting the poor and backward classes) raises important challenges that involve complex synergies and trade-offs. The Tribunal recognises that ‘development’ is the essence of any pragmatic and progressive society based upon a ‘balancing act’ that includes the full spectrum of civil, political, cultural, economic and social process to conserve ecology and improve the well-being of citizens.⁴⁰ Hence, sustainable development should address the requirement of development that can be allowed and which can be sustained by the environment with or without any significant adverse impact, keeping in view the public interest rather than the interests of a handful of persons or group of persons. For the Tribunal, if a project is beneficial to the wider public, inconvenience to a smaller number is acceptable. The balancing of equities, though tough and controversial, entails policy choices and involves applying the ‘margin of appreciation’ doctrine.⁴¹ Making these choices necessitates decisions, not only about risk regulation, but also how much protection is sufficient and whether ends served by environmental protection could be pursued more effectively by diverting resources to other uses. Thus, sustainable development has been swiftly and powerfully infused in its decision-making process to achieve and maintain ecologically sustainable human development.

Procedural Expansion

The NGT developed and expanded its procedures and powers in its commitment to resolve environmental disputes and furthered participatory mechanisms that expressed equal respect for all participants and ensured equal opportunity. Environmental dispute litigation in the NGT is not simply adversarial in nature. It is quasi-adversarial, quasi- investigative, and quasi-inquisitorial in nature.⁴² For instance, standing has been given a liberal construction and a flexible interpretation as expressed in the term ‘aggrieved person’.⁴³ This person may access the Tribunal to seek relief or compensation or settlement of environmental disputes. Two reasons explain this popular approach. The first is the inability of persons due to poverty, ignorance, or illiteracy, living in the area or vicinity of the proposed project, to understand the intrinsic scientific environmental details coupled with the unknown effects of the project and any disaster it may cause. Thus, it is the right of any citizen or NGO to approach the tribunal regardless of being directly affected by a developmental project or whether being a resident of the affected area or not. Second, the subservience of statutory provisions of NGT Act 2010 to the constitutional mandate of Article 51A(g) establishes a fundamental duty of every citizen to protect and improve the natural environment. The aggrieved person must show that he is directly or indirectly concerned with adverse environmental impacts.⁴⁴

Table 1 demonstrates the status of NGT litigation between July to November 2017 and July to November 2018

	9 th July 2017 to 9 th November 2017	9 th July 2018 to 9 th November 2018
Description	Institution	Institution
Original application	287	514
Appeal	15	143

Miscellaneous application	519	594
Review application	12	23
Execution application	13	19
Total	846	1293

TABLE 1: STATUS OF NGT LITIGATION; SOURCE: NGT PRINCIPAL BENCH DELHI DATED 17 DECEMBER 2018

Table 1 illustrates the growing public awareness and confidence in the NGT and is producing a growth in cases filed. This is positive encouragement by the NGT to ‘aggrieved parties’ reflecting a conscious effort on the part of the Tribunal to promote access to environmental justice.

The adoption of an investigative procedure involving the inspection of affected sites by judges, especially expert members is another example of procedural expansion.⁴⁵ The purpose of on-spot investigation is to verify information provided by the parties or obtain further details and assess the ground realities. In *Ministry of Environment and Forests v. Nirma Ltd*⁴⁶ the Supreme Court approved the procedure adopted by the NGT requiring two of its expert members to visit the site and make a report after carrying out a personal inspection.

The stakeholder consultative adjudicatory process is an important procedural development aimed at solving major problems having an impact on public health and the environment.⁴⁷ The consultation process engages the diversity of stakeholders, ensures information sharing is effective and employs techniques that help the submission of time bound, clear cut proposals and suggestions for the effective enforcement of environmental laws. The Ganges river,⁴⁸ Yamuna river⁴⁹ and air pollution⁵⁰ cases are illustrations of the consultative adjudicatory process involving open dialogue with stakeholders. Thus, the stakeholder process provides a greater element of cooperation and ultimately consent rather than single party disappointment or opposition to a judgment.

The controversial ‘suo-motu’ (on its own motion) and ‘judicial review’ powers of the NGT to resolve the environmental issues further reflect its expansive self-created procedures.⁵¹ Interestingly, the NGT Act 2010 does not expressly provide the authority to initiate suo-motu proceedings. According to tribunal dicta, suo-motu jurisdiction should be an integral part of the NGT for better and effective functioning of the institution.⁵² Further, in a series of cases, the NGT declared the tribunal is competent to use and is vested with the jurisdiction and power of judicial review to examine the legality, validity, and correctness of delegated legislation regarding the Acts stated in Schedule I to the NGT Act 2010. The tribunal has all the characteristics of a court and exercises the twin powers of judicial as well as merit review.⁵³

Scientific Expertise

The NGT’s adjudicative process of expanding its substantive and procedural dimensions results in an interdisciplinary bench seeking to harmonize legal norms with scientific knowledge. A symbiotic relationship has been created between legal and scientific experts operating as joint decision makers and adjudicators of environmental conflicts within the

context of a nationally functioning tribunal.⁵⁴

The engagement of the NGT's scientific experts in the decision-making process is akin to Peter Haas's theoretical concept of 'epistemic communities' operating within an environmental regime. The distinctive features of Haas's 'epistemic communities' are described as 'authoritative knowledge-based experts [who] share knowledge about the causation of ... phenomena ... and a common set of normative beliefs about what actions will benefit human welfare in such a domain. Members are experts with professional training who enjoy social authority based on their reputation for impartial expertise.'⁵⁵ The 'epistemic qualities' of the NGT experts, as competent individuals recognised as national and international experts in different environmental areas, promote independence from any party line, organisational bias or corporate association. The NGT benches include scientists with expertise in environmental sciences, environmental engineering, environmental governance, environmental safeguards, industrial and urban environmental management, urban environmental pollution, environmental law and policy, and forestry.⁵⁶

The scientific experts are central, rather than marginal, to the NGT's normative structure. This has contributed to the development of environmental jurisprudence not only encompassing legal doctrines but also science-based knowledge, resulting in the solution of domain-specific problems. NGT's decisions, through expansive rationale and innovative judgments, may go beyond the courtroom door and have far-reaching social and economic impact.⁵⁷ A major innovation was the NGT's willingness to offer scientifically-based structural planning and policies that respond creatively to weak, ineffective regulation or even the absence of regulation. For example, in *Sonyabapu v State of Maharashtra*⁵⁸ the NGT identified the absence of notified emission standards for clamp-type traditional brick kilns by regulatory authorities. The air and water legislation requires 'consent to operate' as mandatory for brick kilns. In appraisal of the consent application, the regulatory authority – the state pollution control board needs to consider emission standards and stipulation of necessary pollution control arrangements. Accordingly, the Tribunal directed the state board to formulate and notify emissions standards for the kilns under the provisions of the air legislation within four months following due process of law.

In a similar vein, the Tribunal in *M/S Ardent Steel Ltd v MoEF*⁵⁹ directed the inclusion of pelletisation – a steel-making process – as a primary metallurgical industrial process requiring mandatory environmental clearance in terms of the Environmental Clearance Regulations 2006. Pelletising is a direct source of environmental pollution. With the rapid and extensive industrialisation and urbanisation in much of India, there is growing realisation that the ultimate prerequisite for humankind's survival is environmental preservation. Thus, greater restrictions on pelletisation were needed.

Other examples of the NGT's creativity include the preparation and recommendation of policies on bio-medical waste,⁶⁰ tyre-burning,⁶¹ and trans-location of trees.⁶² Unbiased, in-house, scientific knowledge has become an integral part of the analysis that produces judicially binding decisions adopting both a problem-solving and policy-creation approach.

Thus, the extensive experience and expertise of NGT judges coupled with their sensitivity to environmental questions, has turned an institutional framework laid down by statute into a dynamic flexible legal framework. The NGT has impacted upon and expanded the country's environmental jurisprudence, developed wide-ranging environmental policies and exposed serious administrative weaknesses. Importantly, in its decisions, the NGT identified the ministry of environment, forest and climate change (MoEF&CC) and related regulatory

agencies as demonstrating indifference, ultra vires, or negligence in the exercise of their responsibilities.⁶³ Frequently, the MoEF&CC has been subjected to severe criticism by the NGT for failing to observe its own procedural rules, such as the improper granting of licences without prior environment impact assessments (EIAs) being completed or appropriately conducted.⁶⁴ The Tribunal introduced an accountability-focused approach whereby a diverse set of actors including governmental and local authorities, companies, and multi-national corporations were restrained from compromising human welfare and the ecology.

PART B

Phase Two: Developing New Strategies and Refocusing on Monitoring and Implementation

An ongoing challenge haunting the NGT is the issue of implementation of its decisions and orders. A strong, equitable judgment does not necessarily result in compliance by the regulators, responsible bodies or persons. Tribunal environmental outcomes and their effectiveness remain key questions yet to be fully resolved. For example, a recent report concerning the implementation of polluter pays based judgments suggests that there are failures in complying with the orders passed by the NGT when imposing penalties ‘due to the absence of a centralized system and poor response of authorities.’⁶⁵ The fines ordered by the NGT are either not imposed due to administrative lethargy or if instituted by the authorities are not properly implemented. The penalties are stop-gap measures and lack long term effectiveness. Neither is there is a system to monitor the payments.⁶⁶

A key requirement for the NGT is to develop new strategies that ensure the effectiveness and implementation of environmental decisions while simultaneously furthering political and public acceptance for environmental protection and the well-being of society.

The appointment of Justice Adarsh Kumar Goel, on 6th July 2018 as the Chairperson introduces a fresh phase of initiating and developing new strategies for the implementation of judgments and orders passed by the NGT.⁶⁷ As in business management ‘a new CEO initiates a deliberate strategic change and is legitimately responsible for establishing a firm’s strategic direction’.⁶⁸ Similarly, Justice Goel has introduced fresh ideas and processes aimed at facilitating and developing collective understanding of how best the orders of the NGT can be implemented in a realistic, achievable and measurable manner.

According to Justice Goel, ‘embracing a constructive approach to resolving environmental disputes is a way forward to gain enhanced public recognition and support within and outside the NGT. The adoption of new procedural strategies by building a right and committed team with expertise is necessary to drive effectiveness and efficiency. Communicating and facilitating involvement of all (the central and state governments, regulatory authorities, local bodies and civil society members) through open dialogue and consultation will bring results for dispensation of environmental justice in India.’⁶⁹

New strategies have been developed, under the guidance of the new Chairperson, to respond to the challenges of the limited implementation of decisions and orders made by the NGT. There is now a focus on procedural changes to improve the Tribunal’s effectiveness of its decision-making. It includes the following procedural changes, namely:

First: Speedy Remedy

The NGT Act 2010 mandates a fast-track process and the decision of cases within six months

of application or appeal.⁷⁰ The NGT from 1st August 2018 has directed the petitioner to approach the concerned authorities (the respondents) for a reply and file the same with the petition at the time of admission thereby mandating an advance service of notice. To provide speedy remedy to the litigants, such person must normally approach the respondents and give them at least 15 days' time to respond. The authorities must give their response either to the individual concerned or put the response on the respective website at the earliest. If a person approaches the Tribunal, the response received should also be mentioned in the application filed before the Tribunal.⁷¹ The mandated advance service of notice is a consequence of the concern raised by the Chairperson Justice Goel about frivolous applications that are increasing the workload of the NGT. He commented that around '50% of the petitions before the tribunal are of "blackmailers" and most of the cases are not related to the environment.'⁷²

In terms of speedy remedy, Figure 1 illustrates disposal of an increasing number of cases, as required by the NGT Act 2010. This reflects the revised priorities of the NGT since July 2018.

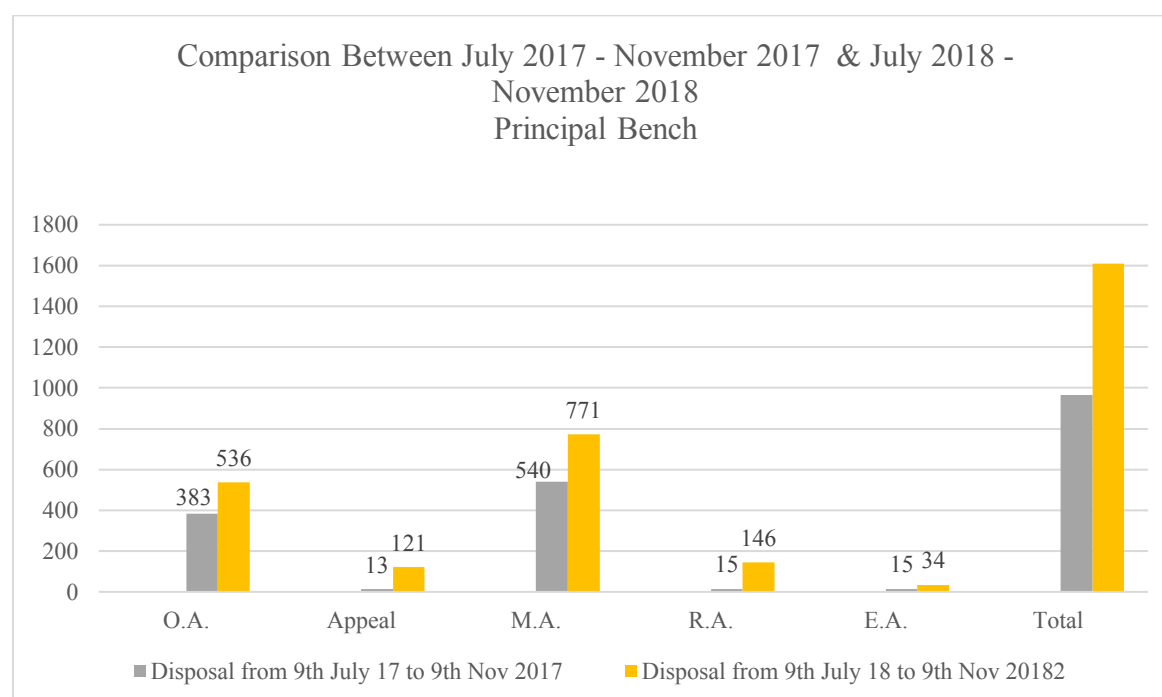


FIGURE 1: DISPOSAL OF CASES (O.A-ORIGINAL APPLICATION; M.A- MISCELLANEOUS APPLICATION; R.A- REVIEW APPLICATION; E.A-EXECUTION APPLICATION); SOURCE: NGT PRINCIPAL BENCH DELHI DATED 17 DECEMBER 2018

Second: Priority Areas and Constituting Monitoring Committees

The NGT has categorised and prioritised cases where the non-implementation/compliance of its orders reveals a stark account of the shortcomings and continuing challenges facing India's environmental governance.⁷³ There remains frustration and inaction thereby jeopardising environmental justice. In *Manoj Mishra v Union of India*⁷⁴ the Tribunal observed 'we have already recorded a clear finding of the failure of the administration [regulatory agencies] in handling the situation and repeated failure in carrying out binding directions in various orders. Even information given from time to time has been found to be incorrect on several occasions.'⁷⁵

The Tribunal's identified priority areas include solid waste management, river and air pollution. The NGT has established monitoring committees, on a day to day basis, to execute orders of the Tribunal under Section 25 of the National Green Tribunal Act, 2010. The purpose of these committees is to review, monitor and implement the environmental rules, prepare suitable time bound action plans, infuse accountability of different authorities and submit a compliance report to the Tribunal.

For instance, *solid waste management* remains one of the major and continuous environmental challenges. Massive mounds of hazardous, noisome solid waste sit in the back streets of every city. Currently India generates about 157,478 tonnes of solid waste per day.⁷⁶ However, it only has the capacity to treat less than 20 percent of the waste generated. The remaining 80 per cent is disposed indiscriminately thereby causing serious health and environmental degradation. The NGT has consistently expressed its concern in several orders including the writ petition transferred by the Supreme Court to the tribunal observing 'we do express our concern that in our country there is not even a single city as of now that has the capacity to provide for total scientific methods for collection and disposal of municipal solid waste. Such a facility if fully established and made optimally operative, would not only help the public at large but would largely serve the purpose of environmental protection.'⁷⁷

The municipal authorities are responsible for managing solid waste under the revised Solid Waste Management Rules 2016 but are often unable to perform their statutory duties effectively. The official agency, the Central Pollution Control Board (CPCB), in its latest report states 'waste processing and disposal facilities in most of the states are not in working conditions...State policy and strategy for implementation of the Solid Waste Management Rules,2016 is not formed by most States...there is lack of coordination between urban local bodies and state pollution control boards and other concerned agencies...there are 2,120 dumpsites reported by the state pollution control boards and only 21 dumpsites have been converted into sanitary landfill sites. It indicates poor implementation of Solid Waste Rules 2016.'⁷⁸

Taking cognisance of this CPCB report and NGT orders, the refocussed Tribunal, under the Chairmanship of Justice Goel, held chamber meetings in this regard with all States to assess the gravity of the situation and understand the constraints faced by the authorities in implementing the Solid Waste Management Rules 2016. The Tribunal concluded 'with few exceptions, the states are nowhere near compliance of the [Solid Waste Management] Rules 2016 despite the directions issued by this Tribunal. Even action plans have not been prepared in all the states more than two years after the [Solid Waste Management] Rules 2016 have been in operation.'⁷⁹

Accordingly, the NGT, as a part of its new strategy, established a Tribunal monitored mechanism through the formation of Apex Level, Regional Level and State Level Committees to oversee the implementation of the Solid Waste Management Rules 2016 and execute its orders. The Apex Monitoring Committee headed by a retired Supreme Court judge and consisting of expert members including scientists and regulators will formulate guidelines and interact with the Regional Monitoring Committees regarding the integrated plans on scientific lines to manage the solid waste which may vary from place to place. The Regional Committees headed by retired High Court judges and experts will cover the north, south, east, west and central India and be responsible for the monitoring and implementation of the Solid Waste Management Rules 2016. The State level committees will ensure local responsible bodies play an important role in solving the problem of solid waste management. The three committees

will meet regularly and take stock of the progress and identify new targets. Public involvement may be encouraged and the status of solid waste management will be put in the public domain. Video conferencing with all the members of the three committees and stakeholders are now organized once every six months to take stock of the progress made during the period. The Tribunal will receive quarterly reports about the monitoring and implementation of the Solid Waste Management Rules 2016.⁸⁰

A Regional Monitoring Committee (RMC) of the Northern Region is selected as an illustration of the reach and structure of a typical Monitoring Committee dealing with solid waste. The RMC Northern Region made a NGT chamber presentation in December 2018 on its functioning and the status of solid waste in the regions of Chandigarh, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab and Uttarakhand.⁸¹ The city of Chandigarh with a population of over 1.15 million with 26 wards generates 450 metric tons per day (MTD) of solid waste.⁸² Door to door collection of the waste is almost 100 percent in all wards. Segregation of waste at household level has started in 21 wards but compliance is unsatisfactory. User charges have been levied as an equitable means of funding solid waste management services and a means of cost recovery. However, there is a dispute about the user charges with the associations of garbage collectors.⁸³

In the state of Haryana, the quantum of solid waste generation is 4,500 MTD. The local bodies have drafted the solid waste management plans with user fees notified and collected. In 1,199 of 1,499 Wards, 100 percent door to door collection of solid waste takes place. In 353 wards, 100 percent segregation takes place at source though it is expected that the full coverage will be by September 2019.⁸⁴

In the state of Himachal Pradesh, in the 54 urban local bodies about 350 MTD solid waste is generated in 499 wards. Individual solid waste management plans are yet to be prepared by the local authorities. However, they have been guided and encouraged to prepare these in-house plans using a provided template. User charges have been notified and collected by 35 urban local bodies with full coverage by 31.12.2018. Door to door collection of solid waste occurs in 329 wards. The target is 90 percent coverage by 31.12.2018 and 100 percent by 01.03.2019. There is very little segregation of waste at source.⁸⁵

In the state of Jammu and Kashmir, there are 86 urban local bodies that generate 3,134 MTD. Solid waste management strategy is at the draft stage. The solid waste management by-laws are pending for notification. User charges are not yet imposed or collected by the local bodies. Door to Door collection of solid waste from households and other waste generators is taking place in about 70 percent of wards in Jammu Region. Segregation at source is commencing in a few wards. The position is similar in the Kashmir region.⁸⁶

In the state of Punjab, 4,100 MTD is generated in 167 urban local bodies. All the urban local bodies have individual solid waste management plans in place and 121 local bodies have already notified the respective by-laws. User charges have been prescribed and collected by 99 urban local bodies. 78 percent of wards have 100 percent door to door collection of solid waste and it is expected that all the wards will be covered by 31.03.2019. 26 percent of the wards have achieved 100 percent segregation at source.⁸⁷

The state of Uttarakhand with 91 urban local bodies and 885 wards is generating 995 MTD of solid waste. The solid waste by-laws have been notified with user charges prescribed and are charged. 775 wards have achieved 100 percent door to door collection of solid waste. Only 175 Wards have 100 percent segregation at source.⁸⁸

Thus, the Tribunal's new monitored solid waste strategy moves in the right direction. The source specific quantification and characterization is helpful in designing adequate solid waste management systems for developing sustainable solutions. These integrated assessment findings are supportive of policy and decision-makers during the strategic planning, monitoring and implementation phases. Adopting holistic approaches that address waste in an environmentally and sustainable way will safeguard the health of the citizens and protect the environment.

Tackling river pollution and rejuvenating the rivers is another illustration of NGT's new monitored strategy. The NGT took suo motu cognizance of the matter based on an article published in the newspaper, "*More river stretches are now critically polluted: CPCB*" by *Jacob Koshy case*.⁸⁹ According to this news item, 351 polluted river stretches have been noted by the Central Pollution Control Board (CPCB) in their 2016-17 Assessment Report. There are 117 stretches that are critically polluted in the three States of Assam, Gujarat, and Maharashtra. The CPCB monitors the quality of rivers by measuring Biochemical Oxygen Demand (BOD). The CPCB considers a BOD less than 3mg/L an indicator of a healthy river. BOD greater than or equal to 30mg/L is termed as 'Priority I', while that between 3.1-6 mg/L is 'Priority V'.⁹⁰ The main causes of river pollution in India are the result of dumping of untreated sewage and industrial waste, garbage, plastic waste, e-waste, bio-medical waste, municipal solid waste, diversion of river waters, encroachments of catchment areas and floodplains, over draw of groundwater, river bank erosion because of illegal sand mining.

The NGT expressed its anguish and disappointment that despite passing several judgments and orders, the number of polluted rivers is increasing. The statutory framework is inadequate and the statutory authorities are unable to perform their duties.⁹¹ Thus, checking pollution in the rivers is integrally linked not only to the availability of clean potable water but also to the protection of environment. Accordingly, the NGT ordered a four-member Monitoring Committee called "River Rejuvenation Committee" (RRC) to prepare an action plan to bring the polluted river stretches to a level of fitness at least to allow safe washing (i.e BOD < 3 mg/L and FC < 500 MPN/100 ml) within six months from the date of finalisation of the action plans. The RRC will also be the Monitoring Committee for execution of the action plan with speedy, definite or specific timelines.⁹²

The Action Plan will encompass key polluting sources including the functioning status of treatment effluent plants and solid waste management and processing facilities, quantification and characterisation of solid waste, trade and sewage generated in the catchment area of polluted river stretch. The action plan will address issues relating to ground water extraction, adopting good irrigation practices, protection and management of Flood Plain Zones (FPZ), rain water harvesting, ground water charging, maintaining minimum environmental flow of river and plantation on both sides of the river. Setting up of biodiversity parks on flood plains by removing encroachment will also be considered as an important component for river rejuvenation. The action plan will also emphasise the utilization of treated sewage to minimize extraction of ground or surface water.⁹³

The Tribunal's above-mentioned order resulted in the CPCB making a chamber presentation to the NGT in December 2018. It also submitted a progress report about the follow up action on the RRC.⁹⁴ A 'Task Team' has been constituted chaired by Member Secretary, CPCB in November 2018. 15 States⁹⁵ and two Union Territories⁹⁶ have constituted River Rejuvenation Committees (RRCs). Action plans have been received from three States- Assam, Chhattisgarh and Madhya Pradesh. The Task Team is assessing water quality restoration plan

strategies that include identification of sources of pollution and quantification of Pollution Load (municipal and industrial), assessment of existing infrastructure, identification of gaps (generation v. existing infrastructure), identification of the organizations responsible for the preparation and execution of plans, and financial support to be part of the Action Plans. The CPCB will submit to the NGT a) the Action Plans for Priority 1 and eleven polluted rivers stretches by February 2019; b) and Monitoring and Execution Report of the approved Action Plans by the states on quarterly basis for the next of 1.5 years.⁹⁷

Additionally, the NGT has also set up Monitoring Committees for other major rivers in India-Ganga,⁹⁸ Ghaggar,⁹⁹ Hindon,¹⁰⁰ Satluj,¹⁰¹ Amri¹⁰² and Yamuna¹⁰³ headed by retired High Court Judges to oversee the execution of the NGT's directions.

The directions in different river pollution cases make the officers of the statutory authorities accountable for their failure, for making potable water available, sources of contamination being closed, Action Plans being prepared at District, State and National levels for restoration of water quality and reversing the damage. The Action Plans will include pollution control from sources such as domestic waste, channelization, treatment, utilization and disposal of treated domestic sewage, river catchment/basin management-controlled ground water extraction and periodic quality assessment, regulating activities in flood plain zone, issues relating to ecological flow, and such other issues which are found relevant for restoring water quality to prescribed standards. The responsible authority will apply the polluter pays principle to recover the cost of river rejuvenation from those responsible for the pollution.¹⁰⁴

The NGT, through its new strategy, is focusing on water and environment management to restore the lost ecology of the polluted stretches of rivers. The hydrological functions including biological productivity, sediment trapping and stabilization, habitat for flora and fauna and nutrient storage are some of the ecological functions providing ecosystem services to humans. The benefits, both tangible and intangible, in turn affect the well-being of the people.

Air pollution is the final identified priority for the NGT regarding monitoring and implementing its directions. Serious concerns have been expressed in the last four decades about the need to restore the standards of the air quality, in view of the adverse effect of air pollution on public health. 102 Indian cities have been identified as 'non-attainment cities'. A non-attainment city is the one which does not meet the National Ambient Air Quality Standards (NAAQS). In the *News Item published by Vishwa Mohan case*¹⁰⁵ the NGT directed all states and union territories with non-attainment cities to prepare appropriate Action Plans. The Action Plan should be consistent with the carrying capacity assessment of the non-attainment cities in terms of vehicular pollution, industrial emissions and population density, extent of construction and construction activities. The Action Plan should also consider measures for strengthening Ambient Air Quality (AAQ) monitoring and take steps to raise public awareness including issuing of advisories to the public for the prevention and control of air pollution and involvement of schools, colleges and other academic institutions and awareness programmes.¹⁰⁶

Thus, the creation of the above-mentioned Monitoring Committees provides input and reviews the results of environmental monitoring studies. The Monitoring Committees do neither replace nor release the regulatory authorities of their responsibilities but directs them to take meaningful actions that protect the citizens and the environment. These committees will also inform the decision-making NGT when there is non-compliance of its

orders and otherwise promote the participation of key stakeholders in a structured forum thereby providing exchange of information and insights.

Third: Using Latest Technology

The use of technology for the dispensation of quick environmental justice is another new strategy adopted by the NGT. For example, use of geotagging specific location and information provides authentic evidence and reduces frivolous applications in environmental litigation. The proposal to develop an e-filing PAN India software will promote participatory mechanism. The NGT plans to introduce a formatted e-petition from any part of India to address environmental concerns. This will reduce red-tape and expenses and reformulate standing in broad terms. The current use of video-conferencing technologies connects the NGT benches with Delhi in real time, despite significant geographical distances. It not only provides a confidential, secure connection but also offers instant communication across India thereby encouraging fruitful discussion between benches. The proposal to introduce transcription methods for clear and concise information as used in arbitration proceedings is also proposed.¹⁰⁷

Hence, the growth and current changes within the institution have produced field-level change, namely both public recognition and support for the NGT. Thus, the Tribunal enjoys a symbiotic relationship that collectively builds and consolidates public trust in the effectiveness of its decision-making capability as well as formulating scientifically justified policies for environmental sustainability.

Conclusion

The NGT has grown and changed since its establishment in 2010. This is to be expected and applauded. It continues to face complex environmental issues involving the determination of multiple environmental questions. This task is challenging but the failure to address them is even more so.

The Tribunal members apply an integrative assessment that crosses disciplinary boundaries by examining the interfaces of law, science and societal norms. It is through this process that persistent uncertainties about future harm are assessed. Innovative procedures and policy making decisions of the NGT produced striking results but there has also been implementation failure. A decision or order of the Tribunal should be judged on an action matrix: who is responsible for implementation, has the decision been applied or enforced, if not then why not and what further steps are required to be taken in the implementation process.

In July 2018, the NGT under new chairmanship of Justice A. K Goel refocussed to pursue outcomes alongside the decision-making process. Affected parties seek much more than a 'paper decision' from the Tribunal. Implementation and enforcement of its decisions is an expected outcome. Consequently, the Tribunal established a series of Monitoring Committees throughout India that report regularly to the NGT about their action plans, time scales and results. Their role is to ensure that environmental justice is done and is seen to be done by all concerned.¹⁰⁸

Notes

** I am grateful to the Chairperson of the NGT, Mr Justice A.K Goel, whom I interviewed and who made me feel welcome, was generous with his time, and open with his recorded comments.

*** I also grateful for the help and support of Ms. Ranu Purohit, Manager (Legal) NGT. She provided me with valuable information and the latest NGT data.

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² White R (2013) 'Environmental Crime and Problem-solving Courts', *Crime, Law and Social Change* 59(3), 267–278 at 268

³ Pring, G, & Pring C (2009) *Greening Justice* Access Initiative, World Resources Institute

⁴ Pring and Pring *Supra*, note 1

⁵ Smith D C (2018) 'Environmental courts and tribunals: changing environmental and natural resources law around the globe' *Journal of Energy & Natural Resources Law*, 36 (2), 137–140 at 138

⁶ Preston, B J. (2012) 'Benefits of Judicial Specialisation in Environmental Law: The Land and Environment Court of New South Wales as a Case Study' 29 *Pace Environmental Law Review*, 395–440

⁷ *M. C. Mehta v. Union of India* (1986) 2 SCC 176; *Indian Council for Enviro-Legal Action v. Union of India* (1986) 3 SCC 212; *A P Pollution Control Board v. M. V. Nayudu* (1999) 2 SCC 718

⁸ Gill, G N (2010) 'A Green Tribunal for India' 22(3) *Journal of Environmental Law*, 461–474; Shrotia, S (2015) 'Environmental justice: Is the National Green Tribunal of India effective?' 17(3) *Environmental Law Review*, 169-188

⁹ Law Commission of India (2003) Proposal to Constitute Environment Courts 186th Report. Article 253 of the Constitution of India states: 'Notwithstanding anything in the foregoing provisions of this Chapter, Parliament has power to make any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country or countries or any decision made at any international conference, association or other body.'

¹⁰ Statement by Jairam Ramesh, former Minister of Environment and Forests, Indian Parliament, 30 April 2010

¹¹ Ministry of Environment and Forests Notification, May 2011, S.O.1003 E

¹² Ministry of Environment and Forests Notification, 17 August 2011, S.O.1908 E

¹³ NGT/PB/157/2013/331, 20 December 2013 (office order)

¹⁴ NGT/PB/266/2013/281, 2 December 2013 (office order)

¹⁵ NGT/PB/Pr/CB/97/2014/M78, 29 November 2014 (office order)

¹⁶ NGT/PB/266/2016/299, 16 April 2016 (office order)

¹⁷ (2012) 8 SCC 326

¹⁸ *Ibid*, p 347

¹⁹ *T. N. Godavarman Thirumulpad v. Union of India*, Supreme Court Order, 5 November 2015

²⁰ Section 14 and Schedule 1 NGT Act 2010

²¹ Section 16 and Schedule 1 NGT Act 2010

²² Section 15 and Schedule 1 NGT Act 2010

²³ Section 2(m) NGT Act 2010

²⁴ The Preamble of the NGT Act 2010 recognises the judicial exegesis of the right to a healthy environment as part of the right to life.

²⁵ Article 21 of the Constitution of India states ‘no person shall be deprived of his life or personal liberty except according to procedure established by law.’ See, *M/S Sterlite Industries Ltd v Tamil Nadu Pollution Control Board* Judgment 8 August 2013; *Durga Dutt v State of Himachal Pradesh* Judgment 6 February 2014; *Manoj Mishra v. Union of India* Judgment 13 January 2015; *Federation of Rainbow Warriors v Union of India* Order 21 August 2018; *Citizens for Green Doon v Union of India* Order 8 October 2018

²⁶ Article 48 A of the Constitution of India, a directive principle of state policy, mandates the state to protect and improve the environment and safeguard forests and wildlife. See, *Vardhman Kaushik v Union of India* 2017 SCC OnLine NGT 983

²⁷ Judgment 4 February 2014

²⁸ *Ibid*, paras 11 and 14

²⁹ *Anjani Kumar v State of UP* 2017 SCC OnLine NGT 979 at para 80; *Aabhijit Sharma v Union of India* 2017 SCC OnLine NGT 745 at para 147; *Aditya N. Prasad v Union of India* Order 1 November 2018; *Westend Green Farms Society v Union of India* Order 2 November 2018; *Shantanu Sharma v Union of India* Order 20 November 2018; *Dr. Arun Kumar Sharma v Ministry of Environment, Forest and Climate Change* Order 26 November 2018

³⁰ Gill, G. N (2017), *Environmental Justice in India: The National Green Tribunal*, UK: Routledge, pp 121-127; See *Sarang Yadwadkar v Commissioner, Pune Municipal Corporation* Judgment 11 July 2013; *Ajay Kumar Negi v Union of India* Judgment 7 July 2015; In reference News item published in “*The Asian Age*” Authored by Sanjay Kaw Titled “*CPCB to rank industrial units on pollution levels*” Order 13 December 2018

³¹ Gill, G. N (2017), *The National Green Tribunal, India: decision-making, scientific expertise and uncertainty*, 29 *Environmental Law and Management*, pp 82-87 at p 86

³² *Asim Sarode v. Maharashtra Pollution Control Board* Judgment 6 September 2014; *NAB Lions Home for Aging Blind v Kumar Resorts* Judgment 26 May 2015; *Vanashakhti Public Trust v Maharashtra Pollution Control Board* Judgment 2 July 2015; *Indian Council for Enviro-Legal Action v Ministry of Environment, Forests and Climate Change* Judgment 10 December 2015; *Satara Municipal Council v Ministry of Environment, Forests and Climate Change* Judgment 9 February 2017

³³ Gill, *Supra*, note 30, p 127; *Hindustan Coca-Cola Beverages Pvt Ltd v West Bengal Pollution Control Board* Judgment 19 March 2012; *Himanshu R Borat v State of Gujarat* Judgment 22 April 2014; *Citizens for Green Doon v Union of India* Order 8 October 2018

³⁴ *Himanshu R Borat v State of Gujarat* Judgment 22 April 2014; *Krishan Kant Singh vs. National Ganga River Basin Authority* Judgment 16 October 2014; *Krishan Kant Singh v*

Daurala Sugar Works Distillery Unit Judgment 9 November 2015; *Gurpreet Singh Bagga v MoEF* (2016) SCC Online NGT 92

³⁵ *Forward Foundation v State of Karnataka* Judgment 7 May 2015; *Ajay Kumar Negi vs. Union of India* Judgment 7 July 2015; *Hazira Macchimar Samiti v Union of India* Judgment 8 January 2016

³⁶ *R K Patel v Union of India* Judgment 18 February 2014; *Vanashakti Public Trust v Maharashtra Pollution Control Board* Judgment 2 July 2015; *Ravindra Bhusari v MoEF* Judgment 6 November 2015

³⁷ <https://timesofindia.indiatimes.com/city/delhi/ngt-fines-delhi-govt-rs-50-crore-for-not-taking-action-against-illegal-steel-pickling-units/articleshow/66236161.cms>;
<https://www.india.com/news/agencies/ngt-slaps-fine-on-up-for-failure-to-submit-report-on-ethanol-distilleries-3041865/>

³⁸ *Manoj Misra v Union of India* Order 8 May 2015; *Vardhman Kaushik v Union of India* Order 7 October 2015

³⁹ *Shri Sant Dasganu Maharaj Shetkari v The Indian Oil Corporation Ltd* Judgment 10 November 2014; *Ramdas Janardan Koli v Ministry of Environment and Forests* Judgment 27 February 2015; *Mukesh Yadav v State of Uttar Pradesh* Judgment 26 February 2016

⁴⁰ Gill, *Supra*, note 30, at 136

⁴¹ *Sarang Yadwad kar v Commissioner* Judgment 11 July 2013; *Shobha Phadanvis v State of Maharashtra* Judgment 13 January 2014; *Leo Saldhana v Union of India* Judgment 27 August 2014; *K L Dagale v Maharashtra Pollution Control Board* Judgment 18 February 2015; *Citizens for Green Doon v Union of India* Order 8 October 2018

⁴² Gill, *Supra*, note 30, at 77

⁴³ Section 18(2) NGT Act 2010

⁴⁴ *Jan Chetna v. Ministry of Environment and Forests* Judgment, 9 February 2012; *Kishan Lal Gera v. State of Haryana* 2015 ALL (I) NGT REPORTER (2) (DELHI) 286; *Sri Ranganathan v. Union of India* (2014) ALL (I) NGT REPORTER (2) (SZ)1; *Samir Mehta v. Union of India* Judgment, 2 August 2016

⁴⁵ *Forward Foundation v. State of Karnataka* Judgment, 10 September 2015; *Court on its own motion v State of Karnataka* Order 6 December 2018

⁴⁶ Order of the Supreme Court 4 August 2014

⁴⁷ Gill, *Supra*, note 30, at 167-168

⁴⁸ *K. K. Singh v. National Ganga River Basin Authority* Judgment 16 October 2014

⁴⁹ *Manoj Mishra v. Union of India* Judgment 13 January 2015 (now referred to as the Maily se Nirmal Yamuna Revitalization Plan 2017)

⁵⁰ *Vardhaman Kaushik v. Union of India* and *Sanjay Kulshrestha v. Union of India* Order 7 April 2015

⁵¹ Chowdhary N and Srivastava N (2018), 'The National Green Tribunal of India: examining the question of jurisdiction' 21(2) *Asia Pacific Journal of Environmental Law* pp 190-216; Gill, G N (2018), 'Mapping the Power Struggles of the National Green Tribunal of India: The Rise and Fall?' *Asian Journal of Law and Society* pp 1-42 at 19-21

⁵² *Tribunal on its own Motion v. District Collector, Sivaganga District* 2014 SCC On Line 1450; *Tribunal on its own Motion v. Union of India* 2014 SCC OnLine 1433; *Tribunal on its own Motion v. Govt. of NCT of Delhi* Order 30 August 2018; *Compliance of Municipal Solid Waste Management Rules 2016* Order 30 August 2018; News Item published in "The Hindu" Authored by Shri. Jacob Koshy titled "More river stretches are now critically polluted: CPCB" Order 20 September 2018; News Item Published In 'The Times of India' authored by Shri. Vishwa Mohan titled "NCAP with Multiple Timelines to Clear Air in 102 Cities to be released around August 15" Order 8 October 2018; News item published in "The Asian Age"

authored by Sanjay Kaw titled “CPCB to rank industrial units on pollution levels” Order 13 December 2018

⁵³ *Wilfred J. v. Union of India* Judgment 17 July 2014; *Kalpavriksh v. Union of India* Judgment 17 July 2014; *S. P. Muthuraman v. Union of India* Judgment 1 September 2015; *Himmat Singh Shekhawat v. State of Rajasthan* Judgment 13 January 2015; *Society for Protection of Biodiversity v. Union of India* Judgment 8 November 2017

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⁵⁵ Haas, PM (2016) *Epistemic Communities, Constructivism, and International Environmental Policy* (Routledge) pp 5-6; Haas, PM (2014) ‘Ideas, experts and governance’ in M Ambrus, K Arts, E Hey and H Raulus (eds) *The Role of ‘Experts’ in International and European Decision-Making Processes* (CUP) 19–43; Haas, PM (2007) ‘Epistemic communities’ in D Bodansky, J Bruneel and E Hey (eds), *Oxford Handbook of International Environmental Law* (OUP) 791–806

⁵⁶ Gill, *Supra*, note 54, at 188

⁵⁷ *Ibid*, at 195

⁵⁸ Judgment 24 February 2014

⁵⁹ Judgment 27 May 2014

⁶⁰ *Haat Supreme Wastech Limited v State of Haryana* Judgment 28 November 2013

⁶¹ *Asim Sarode v. Maharashtra Pollution Control Board* Judgment, 6 September 2014

⁶² *K D Kodwani v District Collector* Judgment 25 August 2014

⁶³ *Prafulla Samantray v. Union of India* Judgment 30 March 2012; *Adivasi Mazdoor Kisan Ekta Sangathan v. MoEF* Judgment 20 April 2012; *Goa Foundation v. Union of India* Judgment, 18 July 2013; *Sudeip Shrivastava v. State of Chhattisgarh* Judgment 24 March 2014; *Jai Singh v. Union of India* Judgment, 18 February 2016

⁶⁴ *Sreeranganathan K. P. Aranmula v. Union of India* Judgment 28 May 2014; *Kalpavriksh v. Union of India* Judgment 17 July 2014

⁶⁵ Bhushan C, Banerjee S and Bezbaroa I (2018), *Green Tribunal, Green Approach: The Need for Better Implementation of the Polluter Pays Principle*, Centre for Science and Environment, New Delhi, at 19

⁶⁶ *Ibid*, at 20

⁶⁷ <http://www.greentribunal.gov.in/chairperson.aspx>

⁶⁸ Greiner L. E and Bhambri A (1989) ‘New CEO Interventions and Dynamics of Deliberate Strategic Change’ 10 *Strategic Management Journal* 67-86

⁶⁹ The author interviewed Chairperson Justice A.K Goel on 31st October 2018

⁷⁰ Section 18(3) NGT Act 2010

⁷¹ *Shivpal Bhagat v Union of India* Order 19 July 2018

⁷² <https://www.hindustantimes.com/analysis/india-cannot-afford-to-have-a-weak-tribunal-to-adjudicate-on-environmental-issues/story-uF6f6gHmn1DUCIEimPvwMP.html>

⁷³ *Supra*, note 69

⁷⁴ Order 26 July 2018

⁷⁵ *Ibid*, para 5

⁷⁶ <https://www.rednewswire.com/municipal-solid-waste-in-india-market-2018-global-analysis-opportunities-and-forecast-to-2023/>

⁷⁷ *Satpal Singh v Municipal Council Gardhiwala* Judgment 25 April 2013; *Rayons-Enlightening Humanity v Union of India* Judgment 18 July 2013; *People for Transparency through Kamal Anand v State of Punjab* Judgment 8 November 2014; *Almitra H Patel v*

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⁷⁸ Central Pollution Control Board (2018) *Consolidated Annual Report (For the Year 2016-17) on Implementation of Solid Waste Management Rules 2016*, p 11

⁷⁹ *In Compliance of Municipal Solid Waste Management Rules 2016* Order 31 August 2018

⁸⁰ *Ibid*

⁸¹ The author was provided unique access to the details of the RMC Northern Region presentation by the NGT (Principal Bench Delhi) on 17 December 2018

⁸² The urban administration in Indian states and their cities are administratively managed by local urban bodies known as municipal corporations or councils. Wards are sub-divisions of a town or city municipality

⁸³ *Supra*, note 81

⁸⁴ *Ibid*

⁸⁵ *Id*

⁸⁶ *Id*

⁸⁷ *Id*

⁸⁸ *Id*

⁸⁹ Order 20 September 2018

⁹⁰ *Ibid*

⁹¹ *Id*, paras 15 and 36

⁹² *Id*, para 50

⁹³ *Id*

⁹⁴ The author was provided unique access to the details of the Central Pollution Control Board presentation titled 'Rejuvenation of water quality of identified polluted river stretches-strategies' by the NGT (Principal Bench Delhi) on 17 December 2018

⁹⁵ Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Madhya Pradesh, Nagaland, Punjab, Rajasthan, Telangana, Tripura and Uttarakhand

⁹⁶ Delhi and Puducherry

⁹⁷ *Supra*, note 94

⁹⁸ *M.C Mehta v Union of India* Order 6 August 2018

⁹⁹ *Stench Grips Mansa's Sacred Ghaggar River (Suo-Moto Case)* Order 7 August 2018

¹⁰⁰ *Doaba Paryavaran Samiti v State of U.P* Order 8 August 2018

¹⁰¹ *Sobha Singh v State of Punjab* Order 24 July 2018

¹⁰² *Meera Shukla v Municipal Corporation, Gorakhpur* Order 23 August 2018

¹⁰³ *Manoj Mishra v Union of India* Order 26 July 2018

¹⁰⁴ *Supra*, notes 98-104

¹⁰⁵ Order 8 October 2018

¹⁰⁶ *Ibid*, para 15

¹⁰⁷ *Supra*, note 69

¹⁰⁸ This article carries data and evidence accurate as of 15 January 2019